

**REMARKS**

Reconsideration of this application is requested. Claims 1 and 3-22 are in the case. Claim 2 has been canceled without prejudice.

**I. THE 35 U.S.C. 112, SECOND PARAGRAPH, REJECTION**

Claims 13 and 14 stand rejected 35 U.S.C. 112, second paragraph, as allegedly indefinite for the reasons stated on page 2 of the action. In response, Claims 13 and 14 have been amended to delete the duplicate phraseology "such that." Withdrawal of this rejection is now believed to be in order, and is requested.

**II. THE ANTICIPATION REJECTION**

Claims 1, 13, 14 and 16-22 stand rejected under 35 U.S.C. 102(e) as allegedly anticipated by U.S. Patent No. 5,688,419. That rejection is respectfully traversed.

Claim 2 is not rejected as anticipated. In light of that indication and in order to advance prosecution, Claims 1 and 16 have been amended to include the subject matter of Claim 2. Claim 2 has been canceled without prejudice.

Withdrawal of the anticipation rejection is now believed to be in order. Such action is respectfully requested.

**III. THE OBVIOUSNESS REJECTION**

Claims 2-5 stand rejected under 35 U.S.C. 103(a) as allegedly unpatentable over U.S. Patent No. 5,688,419 in view of U.S. patent 3,696,228 to Thomas et al. That rejection is respectfully traversed.

As recognized by the Examiner, Claim 2 is not rendered obvious by Offer '419. Thomas fails to cure that deficiency, and does not generate a *prima facie* case of obviousness when taken with Offer.

Thomas relates to construction of heavy-walled pressure vessels, wherein cladding is applied to a composite pressure vessel to provide structural reinforcement (23) to the outside surfaces over a conventionally produced roll-bonded (non-welded) corrosion resistant layer (21), which is formed against a backing material (20). Thomas does not focus on weld cladding to produce improved corrosion resistance by reducing thermal sensitization and surface residual stresses. In Thomas, the corrosion resistance of the final composite is provided by use of the "roll-bonded" alloy layer (i.e. by way of its corrosion-resistant composition, rather than its microstructure and stress state).

In light of the above, it is clear that the presently claimed invention is not rendered obvious by the combined disclosures of Offer '419 and Thomas. There would have been no motivation to combine the disclosures of those two references in the context of the present invention. Even if such a combination had been contemplated (it is believed that would not have occurred), the present invention as now claimed would not have resulted or have been rendered obvious thereby. Absent any motivation to combine the cited disclosures, it is clear that a *prima facie* case of obviousness has not been made out. Withdrawal of all of the obviousness rejection is respectfully requested.

The obviousness rejection of Claims 6, 7 and 15 over Offer '419 and the obviousness rejection of Claims 8-12 over Offer '419 and Offer '735 likewise must be withdrawn. The rejected claims are all dependent on amended Claim 1 and incorporate

the features of Claim 1, which are patentable over the cited for the above-discussed reasons.

With particular reference to Claims 9, 10, 11, and 12, the use of noble metal addition in the filler provides an efficient, catalytic recombination of oxygen in the service water with available hydrogen to form water, thereby eliminating the root cause of stress corrosion (high levels of free oxygen, and the corresponding high electrochemical potential). It would not have been obvious to one of ordinary skill in the welding art to provide control of corrosion by engineering a specific, narrow composition. range of noble metal addition to the filler to limit the electrochemical potential (as well as the expected compositional control achieved by the use of a conventionally alloyed layer), such as is described in the present application.

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With regard to Claims 6 and 7, it would not have been obvious in the context of the present invention that there is a finite and practical threshold of heat input below which thermal sensitization will not occur, especially for high-carbon austenitic materials. This is evidenced by the fact that decades of trying to do so have all failed until the current work was performed, which uniquely specifies that such welding be performed above the critical torch speed and corresponding low-heat input, as discovered in the present experimentation and reported in the application disclosure.

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With reference to Claim 15, while it is known that Delta Ferrite will form when welding steel, it was not known and would not have been obvious to one of ordinary skill, in the context of the present invention, that a very fine morphology of Ferrite is formed in weld samples produced while operating simultaneously above the claimed minimum torch speed, and below the maximum heat input (see Figure 8). The

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maximum fineness of the Ferrite cannot be achieved unless the weld pool freeze rate is significantly greater than achieved by all known arc-based weld cladding practices.

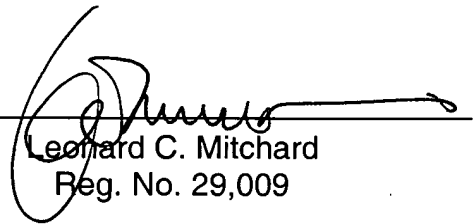
For all of the above reasons, the obviousness rejections should be withdrawn.  
Such action is respectfully requested.

Allowance of the application is awaited.

Respectfully submitted,

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